Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1
Ag84L
Leaflet #
487

Rev. 9/66

Planting BLACK WALNUT *For Timber*

Leaflet No. 487

LIBRARY
RECEIVED
OCT 31 1966
U.S. DEPARTMENT OF AGRICULTURE
BELTSVILLE BRANCH

U.S. Department of Agriculture
Forest Service

Revised September 1966

PLANTING BLACK WALNUT FOR TIMBER

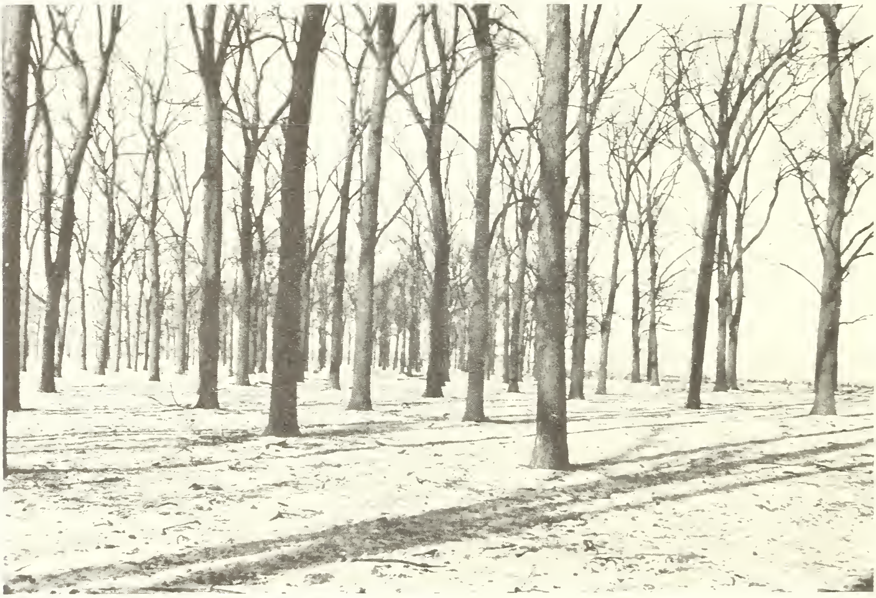
by

F. Bryan Clark[1]

Through the years, many farsighted people have planted black walnut. Though many plantings failed for lack of care, enough good ones remain to show that success is possible if a few basic principles are followed (fig. 1).

Planting a tree is not enough; it must also be tended carefully. Markets for crooked, limby, short-boled walnut are poor. It pays only to grow good trees.

Walnut can be safely planted where it grows naturally in commercial quantities (fig. 2). It is risky to grow walnut outside this general area unless old trees have demonstrated the suitability of the local climate.



F—512604

Figure 1.—This black walnut plantation is ready for harvest.

Cover: On good sites black walnut may grow 125 feet tall, producing four clear logs.

F—429075

---

[1] Silviculturist, USDA Forest Service, North Central Forest Experiment Station, Carbondale, Ill., office, maintained in cooperation with Southern Illinois University.

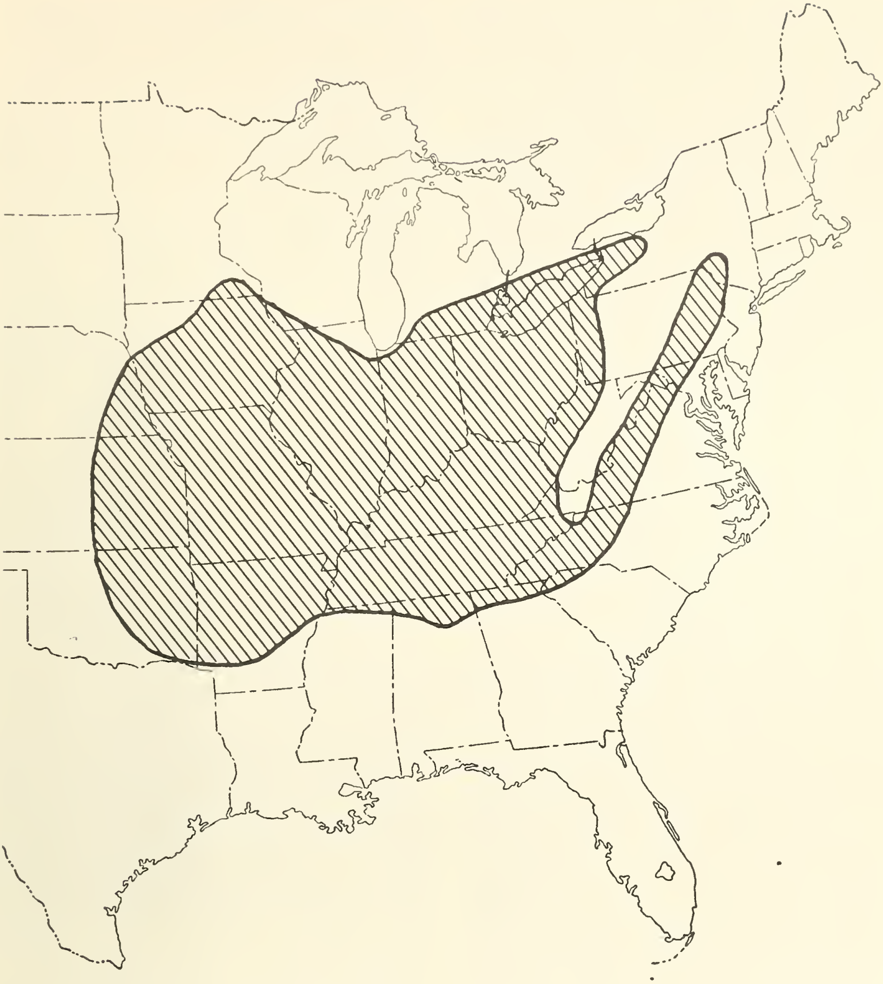


Figure 2.—Generalized commercial range of black walnut.

SELECT THE RIGHT SITE FOR PLANTING

Selecting a wrong site to plant black walnut is a common mistake. Trees survive on poor sites, but their quality is poor. Dry, eroded fields, pastures, and ridgetops will not grow good walnut timber. Also avoid gravelly stream bottoms along with clay soils, claypan land, and poorly drained flats.

For best growth the soil should be deep, fertile, and well drained, and have good water-holding capacity. There should be at least 24 inches of porous soil. Sandy loam or silt loam soils are best, but god walnut can be grown in silty clay loam.

Forest openings are good places in which to plant walnut. These should be at least 100 feet wide, but larger ones are better. Valleys, coves, north and east slopes, and well-drained uplands are good sites, if the soil is suitable. The trees growing on the area show the kind of site. Red oak, white ash, basswood, yellow-poplar, sugar maple. beech, red elm, and. of course. black walnut are good indicators that the site will grow walnut.

Land that has been cropped may grow good walnut unless the soil has been compacted. eroded, or depleted of fertility. Many walnut plantings on wornout cropland will not produce one good tree per acre. Land suitable for corn is probably fertile enough. but it must also have good internal and surface drainage. Many farms have areas of productive cropland too small to fit into the overall farm operation. Such areas may be ideal for growing walnut.

Do not start a large plantation simply because it is easy to plant trees when other farmwork is slack. Trees need weeding like any other crop. and this must be done when the row crops are weeded and work schedules are crowded. A small successful plantation is better than a large failure. Do not plant walnut in fence rows or near buildings. Veneer and lumber buyers are wary of such trees because they may contain imbedded metal that will damage expensive machinery.

PREPARE THE PLANTING AREA

Site preparation and weed control are essential for seedling survival and fast growth. Fields covered with heavy sod or dense perennial weeds and grasses should be plowed or disked before planting. Where this is not possible. planting spots can be scalped by hand with a grub hoe or mattock. The scalp should be at least 3 feet wide and maintained for several years. On open areas. plow in the fall for spring planting. Herbicides that kill germinating weed seeds can be used in addition to plowing or disking. Certain of these chemicals are safe to use with walnut seedlings but not with seed. Be sure to follow the instructions on the label. When in doubt. check with your dealer or the manufacturer.

When planting forest openings it is not necessary to remove the forest litter. But if the area has been grazed and is covered with a dense sod. the sod should be scalped around each planting spot.

You can remove patches of dense underbrush from forest openings by cutting it and spraying the stumps with brush killer or by spraying brush killer directly on the foliage. Foliage spraying must be done the summer before trees are planted. A hand sprayer can be used on brush up to 10 feet tall; a backpack. power mist blower is effective up to 20 feet. Use foliage sprays only on calm. clear days and do not use them near crops that are sensitive to the spray.

When making openings. be sure to fell or girdle any trees that may shade planted walnuts. Stumps of sapling- and pole-sized trees should be treated with brush killer to prevent sprouting.

PLANT LARGE SEEDLINGS

Seedlings purchased from State or private nurseries for forest planting are graded 1-year-old trees. For good survival and growth. seedlings should have tops at least 10 to 14 inches long. and stem diameter 1 inch above the root collar should be at least one-fourth inch. If possible. use even larger stock as long as the roots are correspondingly large and fibrous. Do not plant seedlings with broken or short taproots. or those with root rot.

Walnut seedlings have large roots. so be sure the planting hole is wide and deep enough to avoid doubling or twisting the roots. Holes can be made with a grub hoe. mattock, tile spade, or shovel. but the best and easiest way is with a tractor-mounted post-hole auger. Set the trees so that the root crown is slightly below the surface of the ground. It is better to plant deep than shallow.

During planting. seedlings may be carried in a planting box or a bucket. Nurseries pack material, such as sphagnum moss, around the roots for shipping. Save some of this packing, saturate it with water, and use it to cover the tree roots during the planting job. Always keep seedlings moist and cool. Never plant a seedling that has dried out.

Trees should be planted as soon as possible after they arrive from the nursery. Seedlings come bundled in durable water-holding material so that they can be stored in a cool shady place for several days without deterioration. The bundles may be kept in cold storage for several weeks at a temperature between 35° and 40° F.

Seedlings can also be kept temporarily by transplanting them in a "heeling-in" trench for several weeks if the soil stays moist and the trees are dormant. The trench should be deep enough so that the roots can be covered with soil and long enough so that seedlings can be spread out to avoid air pockets. Pack soil firmly around the roots, and water the trees as needed.

Spring is the best time to plant seedlings regardless of location. Spring planting should be done late enough to avoid frost heaving. Where frost heaving is not a problem, trees may be planted in the fall and winter.

SEED MAY BE PLANTED

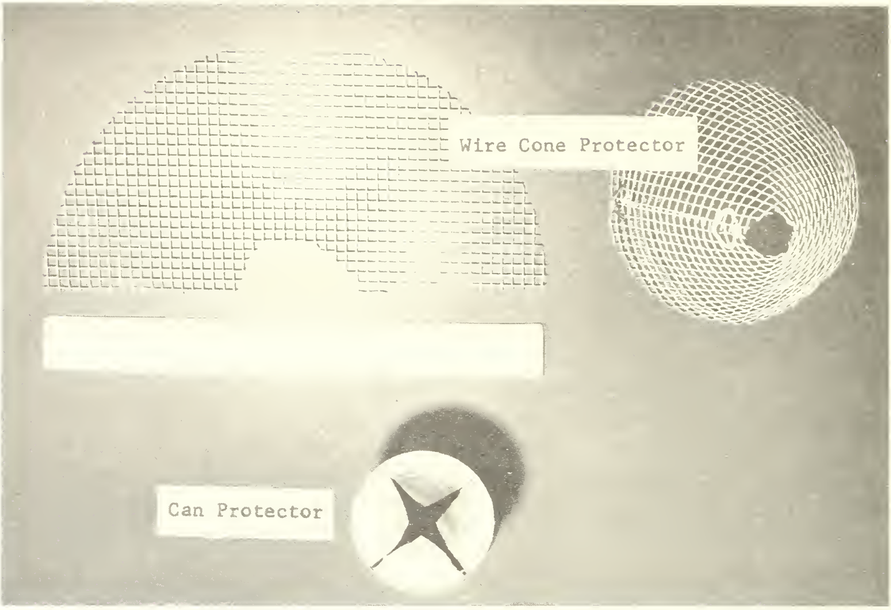
Planting seed is easier and cheaper than planting seedlings, but it has some serious disadvantages. Seed must be collected and stored; planted seed must be protected from pilfering rodents; and germination may be poor. But these are not insurmountable problems.

It is best to collect the walnuts yourself from local trees. In this way you know that the new trees will be suited to local weather extremes. Be sure to select seed from the best trees available. Look for trees with straight clear stems that are without bumps, rot, and frost cracks. Do not collect seed from crooked. short-bodied, limby, and forked trees. Take a tip from the squirrels: Do not collect nuts that have lain on top of the ground during the winter. Crack a few nuts before collecting to be sure they are good.

The best way to store walnuts during winter is to husk and place them in a stratification pit. Stratification is nature's way of maturing the seed embryo so that it will germinate in the spring when the soil warms. The pit should be well drained but moist. It may be located on a slope or in deep porous soil but never in a poorly drained area. The pit should be about 2 feet deep with the walnuts placed in layers two nuts thick separated by layers of sand. Do not let the nuts dry out before, during, or after stratification. Nuts that are stored dry through the winter will not germinate. Cover the pit with at least 1 foot of soil to prevent excessive freezing or drying.

Be sure to plant seeds before they begin to sprout. Seeding should be complete by the end of March in the South and by the end of April in the North.

Seed can be planted with a dibble, stick, or metal rod. Make a hole 2 or 3 inches deep, drop in a nut, scrape soil into the hole, and press firmly with your foot to eliminate air pock-



F—512605

Figure 3.—Two seed protectors—a wire cone and a tin can.

ets. Generally, you may expect about half the nuts to germinate. Some planters put 2 or 3 seeds in a small circle to be sure to get a good stand. Others prefer to plant seed close together in rows. In either case, surplus trees must be removed after the first growing season. Planting several seeds in one spot is better for machine cultivation.

Squirrels, chipmunks, and other nut-eating animals are common throughout the walnut-growing region. That is why, even though good results may be had by planting unstratified seeds with the husks on in the fall, it is usually better to wait until spring. Even then, planted nuts must be protected in some mechanical way because there is no known chemical that will repel the animals that disturb them.

Wire protectors can be used to cover the seed, and they can be reused year after year on new plantings. Such protectors can be easily made by shaping a semicircular piece of hardware cloth into an open-topped cone fastened together with wire or hog rings (fig. 3). The cones must be held in place with a wire rod or partially buried beneath the surface of the ground. Wire protectors should be removed when the seedlings are about 6 inches tall or before the first leaves are well formed.

Another protective device can be made from No. 2 tin cans. First "burn" the cans to remove the tin coating so that they will rust and disintegrate in a few years. Cut out one end of a can and make an X-cut in the other end. Carefully pry up the four points of the "X" to make a 1-inch opening (fig. 3). Holding the can open end up, put an inch or two of soil in the can, drop in a nut, and fill with soil. Then quickly turn the can over so that the open end is down and place it in a hole about an inch deeper than the can is high. Fill in the hole, covering the can with about an inch of soil.

PROVIDE ADEQUATE GROWING SPACE

Forest openings on good soil become a dense tangle of volunteer trees, brush, weeds, briars, and vines within 2 or 3 years. Cut enough volunteer trees to prevent their crowding out the walnut, but leave some as "trainers" so that the planted trees will produce clear, straight boles. Marking the planting spots is advisable to help in finding the seedlings when they are small.

Spacing on forest sites can be irregular to take advantage of natural openings in the underbrush. And there is little need to plant trees closer than 10 feet apart. Also, plant walnuts at least 20 feet from the edges of openings to avoid shade and competition from adjacent trees.

On open land, plantings can be pure walnut or walnut mixed with other species. Walnut has thin foliage, and when grown in pure stands the boles are usually limby; mixed plantings improve wood quality by encouraging natural pruning. Also, the other species help to form a dense canopy that prevents the development of sod. Sod generally forms under pure stands of walnut and retards tree growth. Alternate rows of red oak, white ash, or another species that grows about as fast as walnut may be planted. Do not plant walnut in mixture with fast-growing species, such as cottonwood, black locust, sycamore, sweetgum, or yellow-poplar. These trees soon overtop the walnut.

Properly tended, pure plantings produce the most walnut per acre in the shortest time. Pure plantings require more frequent pruning and weeding than mixed plantings, but they contain more walnut trees from which to choose the final crop trees.

If farm equipment is used for weed control, trees in both mixed and pure stands should be spaced at least 10 feet apart to permit cross cultivation. With chemical and hand weeding, spacing within rows can be reduced to 7 or 8 feet. Wider spacing means fewer trees to plant and weed; closer spacing means a wider selection of crop trees and better natural pruning.

TREES MUST BE TENDED

Planting is merely the first step. A farmer does not plant a row crop in the spring and come back in the fall for a bumper harvest. He tends his crop, and so must the tree farmer. On good walnut sites, you should plan to weed several times a year for 2 or 3 years and at least once a year thereafter until the trees have outgrown the weeds. To decrease losses from frost heaving, do not cultivate late in the growing season during the first year. Various chemicals have been used effectively for controlling weeds around seedlings. Your local forester or county agent can help you select the right chemical. Removing all weeds in the plantation is advisable if you cultivate by tractor. In hand cultivation, keep down all weeds within 3 feet of each tree.

Beginning with the first growing season, forked trees should be pruned to develop single-stemmed trees without serious crooks. When the trees are 5 to 10 years old, you can start pruning to remove the lower branches. Remove the branches flush with the bole any time during the dormant season. Do not remove more than a third of the live crown at one time, and do not permit the branches to get bigger than 1 inch in diameter before pruning. Sprouts should be removed from the pruned bole before they develop into branches and cause knots in the wood. Keep at least 17 feet of the bole free of branches and sprouts. You will get more money for your trees if you prune higher.

Walnut has few natural enemies, but you should visit the plantation often to check for insect and disease attacks. And, of course, fire and livestock must be kept out of your plantation.

EXPERT HELP IS AVAILABLE

Not all the problems you will have are covered here, but plenty of technical advice is available. Usually you should seek help in deciding whether you have a good site for walnut. Soil Conservation Service specialists and farm foresters can help here.

State foresters, State agricultural experiment stations, State extension foresters and county agents, farm foresters, local U.S. Forest Service offices, and forestry consultants can give you specific information either through publications or on-the-ground inspection. The American Walnut Manufacturers' Association, 666 Lake Shore Drive, Chicago, Ill., is willing to offer suggestions. More details on site selection, how to plant, how to handle stock, and plantation care can be found in Agriculture Handbook 247, "Forest Planting Practice in the Central States." Information on selling may be obtained from Farmers' Bulletin 1459, "Selling Black Walnut Timber."

CAUTION: Herbicides are poisonous compounds; careless use can endanger people, domestic animals, wildlife, and fish directly and by contaminating water supplies. Follow all directions and heed all warnings on the container label. Wear protective clothing. Avoid spilling, contact with the skin, or excessive inhalation. Wash exposed skin with soap and water. Always mix and apply formulations in the open.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1966—O 215-858

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402—Price 5 Cents